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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,989	02/06/2004	Robert K. Barr	52183	7098

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EXAMINER	
JOHNSON, CONNIE P	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
12/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/773,989	BARR ET AL.	
	Examiner	Art Unit	
	CONNIE P. JOHNSON	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-7,10,19 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-7,10,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/26/2008, 8/26/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The remarks and amendment filed 8/26/2008 have been entered and fully considered.

2. Claims 1-2, 4-7, 10 and 19-20 are presented.

3. Claims 8, 11-14 and 16-18 are cancelled per applicants' request.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weed et al., U.S. Patent Publication No. 2002/0064728 A1 in view of Kuchta, U.S. Patent No. 5,112,721 in view of Kaufman, U.S. Patent No. 6,547,397 B1 and further in view of Applicant's admission.

Weed teaches a process of making an imaging composition comprising applying a photoimageable composition to a substrate and imagewise exposing the composition to actinic radiation (page 7, [0099]). The photoimageable composition comprises photosensitizing dyes that undergo color change upon irradiation (Weed, [page 7, 0099]). By applicant's own admission on page 6 of the specification, the laser power is conventionally 5mW or less. In addition, the photoimageable composition is combined with other components such as a quinone redox couple comprising 9,10-

phenanthrenequinone and an acyl ester of triethanolamine (page 6, [0090]). The combination of these components forms an effective color forming composition when exposed to radiation. The difference between the reference and the instant application is that Weed does not teach that the photoimaging composition comprises a cyclopentanone based conjugated photosensitizer nor that a 3D image is projected onto the photoimaging composition with a laser.

However, Kuchta, in analogous art, teaches a cyclopentanone based conjugated sensitizer used in imaging compositions. Sensitizers are known as dyes and provide color in imaging compositions and facilitate the photoinitiation process (See Kuchta, column 1, lines 17-30). In column 6, lines 5-19, Kuchta specifically teaches cyclopentanone based conjugated sensitizers in the imaging composition. Weed teaches the use of several different types of dyes suitable for the invention including dyes, which can undergo a change in color upon irradiation. Kuchta's compounds fit this description. It would have been obvious to one of ordinary skill in the art to use the compounds of Kuchta in the method of Weed because Weed's process requires dyes, which are radiation sensitive, and undergo color change with laser irradiation.

Further, Kaufman teaches a laser projector for projecting a 3D image onto an object (see abstract). Kaufman teaches figures 1 and 8 as a laser projector and range finder, respectively. Applicant also discloses figures 1 and 2 of the invention as a laser projector and range finder. Kaufman teaches that the 3D imaging system is used to accurately identify where to place the 3D image on the workpiece (col. 1, lines 33-51). Therefore, it is expected that the 3D image would be selectively placed on the imaging

composition by using a laser projector with a range finder. Therefore, it would have been obvious to one of ordinary skill in the art to use the 3D imaging system of Kaufman on the imaging composition of Weed to accurately position the 3D image onto the imaging composition.

6. Claims 5-7, 10, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman, U.S. Patent No. 6,547,397 B1 in view of Parker et al., U.S. Patent No. 6,618,174 B2 in view of Weed et al., U.S. Patent Publication No. 2002/0064728 A1 in view of Kuchta, U.S. Patent No. 5,112,721 and further in view of Applicant's admission.

Kaufmann teaches a 3-D imaging system, measuring the distance between the projector and a sensor in the workpiece, positioning the workpiece and applying energy to the imaging composition. Figure 1 of Kaufman is the same as figure 1 of the application. The range finding system determines the distance between the projector and a sensor as described in column 8. The optical signal is converted to a digital signal and analyzed by the controller module, element 210, which is the same as applying an algorithm to the results (col. 8, lines 65-67 and col. 9, lines 1-30). As shown in Figure 1, Kaufman teaches the energy beams from the projector fall on sensors and on an internal triangular shape of the workpiece which is not identified in Figure 1. However, because the energy beams fall on this area, it would have been obvious to one of ordinary skill in the art that this is the area to be imaged and must have an imaging composition thereon. Kaufman does not teach a step of removing unwanted portions of the imaging composition from the workpiece. None the less, it would have

been obvious to one of ordinary skill in the art to remove unwanted portions because the imaging composition comprises a plastic film and therefore would easily perforate to remove unwanted portions. Kaufman does not teach applying an imaging composition to a workpiece and applying the 3D imaging composition having a cyclopentanone based compound with an amount of energy to affect color change. Further, Kaufman does not specifically teach drilling holes at the indicators for joining fasteners to the workpiece.

However, Parker teaches a method of making a pattern on a workpiece. The pattern may be a three dimensional holographic pattern (col. 2, lines 37-45). The method comprises drilling holes into the workpiece by photoablation to form apertures (col. 8, lines 33-39). It would have been obvious to one of ordinary skill in the art to drill holes in the workpiece of Kaufman with a laser because Parker teaches laser ablating the workpiece to form apertures in thin membranes. The apertures in thin membranes are representative of placing holes in the workpiece, by which fasteners can be applied.

Weed teaches a process of making an imaging composition comprising applying a photoimageable composition to a substrate and imagewise exposing the composition to actinic radiation (page 7, [0099]). The photoimageable composition comprises photosensitizing dyes that undergo color change upon irradiation (Weed, [page 7, 0099]). By applicant's own admission on page 6 of the specification, the laser power is conventionally 5mW or less. In addition, the photoimageable composition is combined with other components such as a quinone redox couple comprising 9,10-phenanthrenequinone and an acyl ester of triethanolamine (page 6, [0090]). The

combination of these components forms an effective color forming composition when exposed to radiation. It would have been obvious to one of ordinary skill in the art to use the photoimageable process of Weed in the method of Kaufman because Weed teaches the imaging process while Kaufmann outlines the manner in which the process is used in the laser system for projecting a 3D image. The amounts of power the system projects and the amount of energy are at conventional levels. The amount of energy is directly related to the amount of power used by the projection system and so can be optimized.

Kuchta, in analogous art, teaches cyclopentanone based photosensitizers in a photopolymerizable composition (see Kuchta, col. 5, line 66). It would have been obvious to one of ordinary skill in the art to use the cyclopentanone based conjugated sensitizer of Kuchta in the process of Weed because Weed's process requires a radiation-sensitive compound, which affects color change upon increase in temperature.

Response to Arguments

7. Applicant's arguments filed 8/26/2008 have been fully considered but they are not persuasive.

8. Applicant argues that Weed teaches near infrared sensitizers while Kuchta teaches sensitizers in the visible wavelength range.

Applicant is directed to page 6, [0090] of Weed wherein Weed teaches a redox couple comprising 9,10-phenanthrenequinone as the oxidizer and which absorbs in the range of 430 to 550nm. The reducing compound is an acyl ester of triethanolamine. Although the 9,10-phenanthrenequinone may not be a cyclopentanone, the 9,10-

phenanthrenequinone still absorbs in the visible spectrum. Therefore, Weed teaches near infrared and visible light absorbing sensitizers.

9. Applicant argues that Kaufman does not teach the desirability of modifying the method of Kaufman to include a photoimageable composition on the contoured surface.

Kaufmann teaches a process that is used in a laser system for projecting a 3D image while Weed teaches a process of making an imaging composition. The method of Weed comprises applying a photoimageable composition to a substrate and imagewise exposing the composition to actinic radiation (page 7, [0099]). The photoimageable composition comprises photosensitizing dyes that undergo color change upon irradiation (Weed, [page 7, 0099]). The photoimageable composition of Weed comprises other components such as a quinone redox couple comprising 9,10-phenanthrenequinone (oxidizer) and an acyl ester of triethanolamine (reducer) (page 6, [0090]). The combination of these components forms an effective color forming composition when exposed to radiation. It would have been obvious to use the photoimageable process of Weed in the method of Kaufman because Weed teaches the imaging process while Kaufmann outlines the manner in which the process is used in the laser system for projecting a 3D image.

10. Applicant argues that Kaufman does not teach an imaging composition to determine the distance from the laser source and the contoured surface.

Weed is used to teach an imaging composition while Kaufman is relied upon for the laser system. Although Kaufman may not teach an imaging composition, one of ordinary skill in the art would modify the Kaufman reference to include the imaging

composition of Weed because Kaufman teaches a laser system for imaging composition while Weed teaches the imaging composition.

11. Applicant argues that Kaufman does not teach an imaging composition nor drilling holes in the substrate of Kaufman based on the location of the imaging composition.

Kaufmann teaches a 3-D imaging system, measuring the distance between the projector and a sensor in the workpiece, positioning the workpiece and applying energy to the imaging composition. Figure 1 of Kaufman is the same as figure 1 of the application. The range finding system determines the distance between the projector and a sensor as described in column 8. The optical signal is converted to a digital signal and analyzed by the controller module, element 210, which is the same as applying an algorithm to the results (col. 8, lines 65-67 and col. 9, lines 1-30). As shown in Figure 1, Kaufman teaches the energy beams from the projector fall on sensors and on an internal triangular shape of the workpiece which is not identified in Figure 1. However, because the energy beams fall on this area, it would have been obvious that this is the area to be imaged and must have an imaging composition thereon. Although Kaufman may not teach the imaging composition as claimed, Kaufman does teach positioning a workpiece and applying energy to an imaging composition on the workpiece. In addition, Parker is used to show a method of making a 3-D pattern on a workpiece. The method comprises drilling holes into the workpiece by photoablation to form apertures (col. 8, lines 33-39). The apertures are representative of placing holes in the workpiece by which fasteners can be applied. Although the pattern may be

holographic, the method still comprises making a pattern on a workpiece and drilling holes into the workpiece by photoablation to form apertures (col. 8, lines 33-39). Therefore, it would have been obvious to drill holes in the workpiece of Kaufman with a laser because Parker teaches laser ablating the workpiece to form apertures in thin membranes. The apertures in thin membranes are representative of placing holes in the workpiece, by which fasteners can be applied. Therefore, Parker is relied upon to show an image applied to a workpiece and laser irradiating the imaging composition to form aperatures. Since Kaufman teaches laser projection of an image on an object, it would have been obvious that the laser projection would form aperatures.

12. Applicant argues that figure 1 of Kaufman does not teach an imaging composition on a substrate.

Kaufman teaches figures 1 and 8 are a laser projector and range finder, respectively. Kaufman may not specifically teach figure 1 as being used to apply an image to an imaging composition, however Kaufman teaches the same apparatus as figure 1 of the invention and discloses that figure 1 is a laser projector. Therefore, figure 1 of Kaufman (laser projector) is capable of applying a 3D image to an imaging composition in Weed. Applicant also discloses that figures 1 and 2 of the invention are a laser projector and range finder, respectively. Figure 1 of Kaufman is the same as figure 1 of applicants' present specification. Figure 1 of Kaufman discloses energy beams from the projector fall on sensors and on an internal triangular shape of the workpiece which is not identified in Figure 1. However, because the energy beams fall

on this area, it would have been obvious that this is the area to be imaged and must have an imaging composition thereon. Weed, in analogous art is used to show an imaging composition formed by the method of Kaufman.

13. Applicant argues that Weed is directed to a photoimageable composition comprising near infrared sensitizers while Kuchta is directed to sensitizers which are sensitive in the visible spectrum.

Applicant is directed to page 6, [0090] of Weed wherein Weed teaches a redox couple comprising 9,10-phenanthrenequinone as the oxidizer and which absorbs in the range of 430 to 550nm. The reducing compound is an acyl ester of triethanolamine. Although the 9,10-phenanthrenequinone may not be a cyclopentanone, the 9,10-phenanthrenequinone still absorbs in the visible spectrum. Therefore, Weed teaches near infrared and visible light absorbing sensitizers.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Connie P. Johnson
Examiner
Art Unit 1752

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795